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CARNEGIE

Magazine



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Etruscan burial urn, decorated with the reclining figure of a woman in the sleep of death. On exhibit at Carnegie Museum.



The Pre-Roman (Etruscan) Economy

Approximately 850-400 B.C.

This Etruscan burial urn is typical of the fine sculpture and stone-carving of the Pre-Roman period. In addition, many other crafts and industries were developed, including metal working, pottery making, weaving, jewelry making, quarrying and lumbering. And the extremely rich soil of the section made agriculture most important in the Etruscan economy.

A coinage and banking system did not come into use until after the height of Etruscan power. Originally, most trade was accomplished by primitive barter. Later in the period, lumps of copper were used as a medium of exchange.

In spite of their lack of a well-developed money system, the Etruscans were able to rise to power through the use of agricultural and industrial methods which were advanced for their time. Gradually, as trade developed with the Greeks, Carthaginians and other Mediterranean countries, the Etruscans came into possession of various types of Greek coins—which later became the basis for the Roman money system, upon which much of our modern money is patterned.

Thus, the use of standardized currencies and the development of banking practices came into being only as trade and commerce expanded. So it is today—our highly complex monetary and banking systems have come as a logical outgrowth of our modern financial and commercial needs.



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WORK

Work thou for pleasure.
Paint or sing or carve
The thing thou lovest,
Though the body starve.
Who works for glory
Misses oft the goal,
Who works for money
Coins his very soul.
Work for the work's sake,
Then, and it might be
That these things shall
Be added unto thee.

—KENTON COX

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AT THE LIBRARY

Pittsburgh children are delighted with the newly decorated and highly colorful boys and girls room at the Library. Grey, yellow, and sandalwood, combined with bleached oak, make these spacious quarters one of the most attractive children's libraries in the United States. Ultimately less than \$10,000 will have been contributed by The Pittsburgh Foundation, Wherrett Memorial Fund, to the Carnegie Library of Pittsburgh for the remodeling of the central boys and girls division. (See page 51.)

This Library was one of the great pioneers in work with children and since its establishment at the turn of the century its reputation has grown, as frequent requests from individuals and institutions at home and abroad testify. Last year 123,270 books were borrowed by the boys and girls from this room, a considerable gain over the previous year in spite of some curtailment of service during remodeling. Specific service was given to 66 community groups, 192 school classes made formal trips to the room, and 129 story hours were attended by 6,050 children. The room represents a very active part of a city-maintained institution, the Carnegie Library of Pittsburgh.

—V. C.

[Photo by Hess Photographing Co.]

BEQUESTS—In making a will, money left to Carnegie Institute, Carnegie Institute of Technology, or Carnegie Library of Pittsburgh should be covered by the following phrase: I do hereby give and bequeath to (Carnegie Institute) or (Carnegie Institute of Technology) or (Carnegie Library of Pittsburgh) in the City of Pittsburgh, Pennsylvania.....Dollars

MEMORIALS—Carnegie Institute is prepared to receive contributions given by friends in memory of deceased persons in lieu of floral tribute, and to notify the deceased's family of such gift. The amount of the contribution will not be specified unless requested by the donor.

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Calendar for February

TUESDAY EVENING LECTURE SERIES

Music Hall, 8:15 o'clock

Admission only by

Carnegie Institute Society card

February 5—DENMARK AND SWEDEN

The grandeur of Sweden's scenery and the charm of Hans Christian Andersen's homeland will be shown by Herbert Knapp in colored films made last fall.

February 12—SIERRA MADRE

Ray Garner will show in movies the highest waterfall in North America, great canyons, lost Spanish villages, the stone-age Tarahumare Indians.

February 19—GUATEMALA

Eternal spring, lush beauty, fascinating people are pictured by Clifford Kamen in a new color film, with background of Mayan and Spanish culture.

February 26—TROPICAL AUSTRALIA

Alfred M. Bailey, director of the Denver Museum of Natural History, will show the strange wildlife and scenic splendor of the land "down under."

IN THE ART GALLERIES

ASSOCIATED ARTISTS—The 42d annual exhibition of the Associated Artists of Pittsburgh opens with a preview the evening of February 7 and will continue through March 6. This will include 230 oils and a lesser number of water colors, drawings, sculpture, ceramics, and other handicraft including bookbinding, jewelry, metalwork, and weaving.

BOTANICAL ILLUSTRATION—Flower prints, original botanical drawings, and color-plate books from the collection of Mrs. Roy Arthur Hunt continue in the second-floor galleries through February 17.

ROUAULT PRINTS—The "Miserere et Guerre" series of 59 etchings-aquatints by Georges Rouault presented to Carnegie Institute by Mr. and Mrs. Charles J. Rosenbloom may be seen from February 14 through April 6.

HOWARD COLLECTION—Lent by the Columbus Gallery of Fine Arts are 79 paintings and water colors to be exhibited February 28 through April 13.

MUSIC PROGRAMS

The last two Saturday-afternoon free recitals sponsored jointly by Pennsylvania College for Women and Carnegie Institute in the Music Hall at 4:00 o'clock will be February 2 and 9. Johana Harris, Samuel Thaviu, Mihail Stolarevsky, Aldo Parisot, and Bernard Goldberg will present chamber music by Mozart, Milhaud, and Fauré on the 2d. On the 9th, Mrs. Harris will play piano compositions by Bach arranged by Roy Harris, as well as works by Schubert, Debussy, and Nikolai Lopatnikoff.

Marshall Bidwell presents an organ recital each Sunday afternoon at 4:00 o'clock, under auspices of the Arbuckle-Jamison Foundation.

DISCUSSION GROUP

Norman C. Dawes will lead a discussion group on "Our American Heritage" each Wednesday evening at 8:00 o'clock, in Carnegie Library School classroom A, at the Central Library building in Oakland, commencing February 27 and running through March 26.

ART AND CRAFT CLASSES

With instructors

Spring schedule: February 4—May 2
with recess April 6-13

Tuition rates supplied on request

Class hours, unless otherwise indicated:

Afternoon, 1:30 to 4:15; evening, 7:00 to 9:45

MONDAY AFTERNOON

BEGINNER'S DRAWING AND PAINTING, E. P. Cousc

MONDAY EVENING

BEGINNER'S OIL PAINTING, Robert R. Young

BEGINNER'S DRAWING AND PAINTING, Daniel Kuruna

BEGINNER'S PHOTOGRAPHY (Including Flash and Color), James W. Ross (7:30 to 9:45)

EXPLORER'S CLUB, W. Leroy Black

TUESDAY AFTERNOON

INTERMEDIATE AND ADVANCED PAINTING, Harry Scheuch

BEGINNER'S WATER COLOR, Mr. Young

TUESDAY EVENING

PRINCIPLES OF COLOR AND DESIGN, Joseph Fitzpatrick

PORTRAIT AND FIGURE DRAWING AND PAINTING (model used), Mr. Scheuch

WEDNESDAY AFTERNOON

BEGINNER'S DRAWING AND PAINTING, Mr. Cousc

WEDNESDAY EVENING

INTERMEDIATE DRAWING AND PAINTING, Mavis Bridgwater

BEGINNER'S METALWORK, Matthew Doyle

BEGINNER'S TAXIDERM, James Kosinski

THURSDAY AFTERNOON

PORTRAIT AND FIGURE DRAWING AND PAINTING (10:00 A.M. to 3:00 P.M.; model used), Mr. Young

MURAL AND PANEL DECORATING, Mr. Young (1:00 P.M.)

THURSDAY EVENING

INTERMEDIATE PAINTING, Mr. Scheuch

BEGINNER'S WEAVING, Lois I. Clifford

BEGINNER'S PHOTOGRAPHY (Including Flash and Color), Mr. Ross, (7:30 to 9:45)

FRIDAY AFTERNOON

BEGINNER'S OIL PAINTING, Mr. Scheuch

FRIDAY EVENING

BEGINNER'S SCULPTURE, Robert C. Burkhart

PORTRAIT PHOTOGRAPHY (model used), Arthur Swoger (7:30 to 9:45)

FISHERMEN'S FLY-TYING, Roland W. Hawkins

BEGINNER'S DRAWING AND PAINTING, Mr. Kuruna



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OPERATION "CLINKERS"

By JOSIAH R. EISAMAN

Two bewhiskered hooded ghosts climb from the companionway on the *Arthur Rogers* and crawl aft. Captain Hepworth growls: "Take the tiller, 'Fisheyes,' she's all yours. Keep her nose in the wind and don't luff. The Southern Cross is dead ahead and the Great Dipper is on the starboard but upside down. Those skyrockets coming over the lee rail are only phosphorescent plankton. It's awfully black when the squalls hit. Course south by sou'west." "Br-r-r," we growl, "we may be a half degree from the equator but glad we have our woolies."

In a full moon the old pilot boat built in Falmouth, England, in 1922 has beaten her way through the Gulf of Panama from Balboa. Information afforded by *Sailing Directions* has been too accurate: "Navigational approaches to the Gulf of Panama for a sailing vessel is one of the most tedious, uncertain, and vexatious undertakings known to seamen."

We had been detained for one week because of our skipper's sudden attack of malaria. But now our seventy-foot ketch, slow but steady, is well into the Pacific. We are making seven knots and the lee rail is awash.

The crew is composed of Tom Hepworth, master; Diana Hepworth, first mate; Bill (Bulge) Craelock, seaman, (all British); Anne Woodin, cook; Bill (Bilge) Woodin, "Fisheyes" Masland, and Joe Eisaman, seamen. The last is unofficially ship's surgeon. As supercargo there are a dog, two cats, and the usual contingent of cockroaches.

Our landfall is an anomalous group of islands with many

names. This formation, straddling the equator, is six hundred miles due west of Ecuador. Commonly known as the Galápagos, derived from the Spanish for tortoise, they may be called the Archipiélago de Colón, Enchanted Islands, and because of their volcanic nature, the very descriptive title, "Ash Heap of the Pacific."

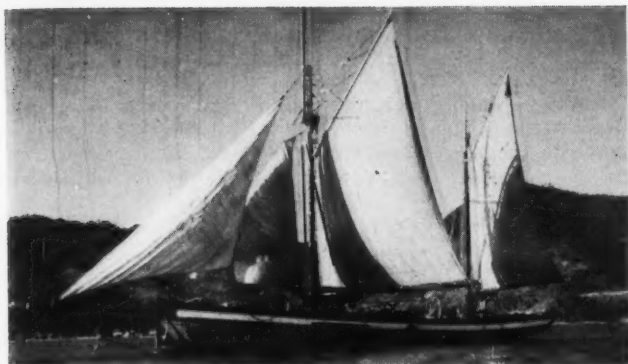
As a group of amateur naturalists, explorers, and photographers, we are keen to land on those geological enigmas and face the strange biological curiosities of those volcanic mountains one thousand miles from our port of embarkation at Balboa.

Not even the following bitter observations of the famed British ornithologist, David Lacke, could discourage us. "The Galápagos are interesting but scarcely a residential paradise. The biological peculiarities are offset by an enervating climate, monotonous scenery, dense thorn scrub, cactus spines, loose sharp lava, food deficiencies, water shortage, black rats, jiggers, ants, mosquitoes, scorpions, Ecuadorian Indians of doubtful honesty, and dejected, disillusioned European settlers."

A million years ago (in early Pleistocene time) a great geological revolution oc-



CREW OF THE ARTHUR ROGERS IN THE STERN: (left to right) "BULGE," "BILGE," ANNE, DIANE, TOM, JOE, AND "FISHEYES."



THE ARTHUR ROGERS, A SEVENTY-FOOT KETCH, SLOW BUT STEADY

curred on the bottom of the eastern Pacific. Lava was ejected from abyssal depths thousands of fathoms beneath the surface. Eruption after eruption or possibly one violent emission continued until volcanic peaks had risen thousands of feet above the ocean. Activity continued for some time, followed by a period of inactivity. Some scientists discredit this oceanic theory and believe that these formations are remnants of a continental land mass related to Central America. Although William Beebe adheres to this belief, Darwin, Lacke, and others feel that there is no evidence in support of an earlier land bridge. My own amateurish observations lead me to believe strongly that the islands must once have been connected with one another although probably not attached to the continent.

One might ask, "How did verduration and habitation occur if these islands were abruptly spewed from the floor of the Pacific?" Possibly this favors the continental theory, but the reliable agents—winds, currents and birds—could have begun the process of planting and populating the islands.

Owing to the complete absence of fos-

Readers will remember Dr. Eisaman's description of his voyage through the rapids of the Colorado River, written in collaboration with his daughter, which appeared in *CARNEGIE MAGAZINE* almost two years ago. One of Pittsburgh's most intrepid, and inveterate, travelers, Dr. Eisaman takes his trips while on vacation from his work at Elizabeth Steel Magee Hospital and from the University of Pittsburgh, where he is associate professor of obstetrics.

sils, artifacts, and aborigines, we have little knowledge of the geology and ethnology of the Galápagos islands.

The insular terrain consists of unbelievably black, jagged, sharp lava, destructive to flesh and clothing. The eight major islands are from two to ninety miles in diameter. They comprise one or more steep volcanic

cones varying from two hundred to five thousand feet in height. Distributed throughout this area are many smaller islands and inaccessible rocks. Darwin estimated that there were two thousand volcanic craters in the archipelago, and some of these have been active as recently as 1926, 1930, and 1948.

Two distinct climatic zones are noted. The desert or cactus zone rises to an elevation of eight hundred to one thousand feet. Above this, on what is locally and erroneously called "the pampa," may be found more luxuriant tropical vegetation, larger trees and tropical fruits.

The equatorial heat is tempered by the cold, plankton-rich Humboldt current coursing from the Antarctic and the deep abysses of the Pacific and dissipating itself about the islands. The seasons are rainy and dry. The rainy season is characterized by alternating periods of drenching rain and bright skies; the dry, by continuous mists (*garua*) covering the pampa.

From the bare lava rocks the water is quickly shed and drought is prevalent throughout the year. It has been said that voyagers arrive in the islands thirsty and leave even more so.

The Galápagos were discovered and rediscovered. Privation, mystery, violence, crime, and sorrow may be found throughout their history. The belief that they were floating led to the name of "The Enchanted Islands."

Only milestones of their history can be noted in this paper. The first authentic mention of the group is that of Tomás de Berlanga, Bishop of Panama. Sent to Peru

by his liege, Charles V, he drifted in doldrums for weeks suffering great thirst. On Passion Sunday a mass was held. Thereafter, hogsheds of water were found, but two men and eight horses died of thirst.

To Ortelius, a Flemish cartographer, is attributed the first use of the title, Galápagos.

The islands became an exclusive rendezvous for English buccaneers in the latter part of the seventeenth century. Ambrose Cowley with such a group of "merry boys" rounded the Horn on a captured Danish vessel renamed *Bachelor's Delight*. It was he who first accurately charted the islands and named them after British nobility.

William Dampier, literary pirate, and pilot of the *Duke*, wrote the first objective description of the archipelago. On Juan Fernández, off the coast of Chile, he had found the famous castaway, Alexander Selkirk (Robinson Crusoe), and with him raided along the coast of South America before they returned to the Galápagos to find "no water but plenty of turtle."

The Spaniards, having done no oceanic exploration since that of the Bishop of Panama, undertook to chart the islands with Don Alonso de Torres as leader in 1789, and gave them Spanish names.

British whalers, following the cold, biologically rich Humboldt current, frequented the anchorages to outfit and revictual with the meat of the tortoise.

During the War of 1812, Commodore Porter of the U.S.S. *Essex* preyed on enemy whalers. By information gleaned through the primitive post office on Santa Maria Island, he learned of their whereabouts.

In 1832 the Galápagos were annexed by Ecuador and named Archipiélago de Colón. A strenuous but unsuccessful effort was made to colonize the group by General José Villamil.

About this time Charles Darwin, a young man who had failed his

medical curriculum, was sailing toward the islands on the *Beagle*. This young naturalist arrived on San Cristóbal and compared the islands to the "iron furnaces near Wolverhampton." He was attracted by the tortoises, finches, and iguanas; observed the species differentiation and great variation created by geographical isolation. In his *Journal of the Voyage of the Beagle* and *Origin of Species* he was convinced of the mutability of species owing to adaptation.

Efforts at colonization of the islands have been highly unsuccessful, from the first attempt to populate them with political prisoners, to the Norwegian immigration in 1927. Within recent years a few European and Norwegian escapists have successfully obtained a foothold and have become self-sustaining by sheer diligence and hard labor.

The fifteen days spent in tacking our way for a thousand miles seemed interminable. We slowly lost sight of Taboga Island sacked by buccaneer Henry Morgan in 1670.

One anchorage was made at Otogúe to replenish our store of tropical fruits. The wind was of so little help that the auxiliary motor, much to our chagrin, had to be cranked. We barely crawled. "Bilge" Woodin, armed with a butterfly net, went over the side for a venomous sea cobra, and easily overtook the ketch. No vessel had been sighted for ten days.

Our days and nights had been punctu-





Photos by Josiah R. Eisman

VOLCANIC CRATERS, FUMARoles, AND ROPEY LAVA COMPRISE THE LANDSCAPE

ated by four-hour watches, sharp squalls, schools of porpoise and black fish, barges of leaping tuna and bonita and billows of phosphorescence at night. We envied *Kon-Tiki* and wished for some sea monster to nudge the boat forward. No flying fish were collected from the deck for breakfast. They went on over. Eggs and moldy bread had been finished a week before. Most of us yearned for a fresh-water bath. Jigger bites, acquired in Panama, needed attention. However, the most profane act was committed by the master, who ran fifty gallons of good fresh water into the fuel tank.

Besides, there are more ways of being killed on a sailboat than a landlubber can imagine. The inevitable casualties incurred on a wet deck and black night by tacking, or by collision with a boom or a great wave add to one's sense of insecurity.

At times the sea can be as barren and lifeless as any desert. Where are the nervous little petrels, the beautiful long-tailed tropic birds, the black wing-tipped gannets, and the albatross? We even miss the ominous shark fins, the frenzied schools of hunted fish, and the resounding slap of the giant ray.

One might even feel with Samuel Johnson that "A man would never be a sailor if he had contrivance enough to get himself in jail. In jail there is less chance of being drowned, he has more room, better food, and commonly better company."

Half a degree from the equator elaborate plans had been made for the crossing. "Fisheyes," the oldest, was to be honored as Father Neptune. At eleven in the morning Tom announced that we were crossing The Line. A celebration would have been suicidal. The *Arthur Rogers* was bucking and diving. We were cold and wet. "Bilge" was unable to prove his pet theory of clockwise-counterclockwise swirl of water in the drain on respective sides of the equator. The best we could muster was a small dram of rum.

Soon we should sight land. He who first cried "Land ahoy" would be relieved of his watch. We were nearing San Cristóbal Island, the port of entry, somewhat nervously. The chart showed two wicked rocks, Kicker and Dalrymple, guarding the approach to Wreck Bay. Not until the next dawn did we see the majestic split outline of Kicker.

[Turn to page 58]

SCIENCE SERVING THE FINE ARTS

ROBERT L. FELLER



Does science have a proper place in the field of the fine arts? There are persons who will say, very positively, "Not at all!" The disclaimers are perhaps hasty and do not fully understand the role that scientists intend to play. Chemists and physicists certainly do not expect to place pictures in front of some sort of electronic black box that will conveniently ring a bell in the presence of a fake or forgery. Nor do they intend to sit in judgment on esthetic questions; such is not their special training. Scientists, however, are well acquainted with the properties of materials. Is it not wise, then, to consider their counsel in preserving material objects and in developing more durable substances? Leading museums of art all over the world now include technical advisers on their staffs. This article will discuss the various ways in which men of science are able to serve the fine arts.

THE METHOD OF SCIENCE

The method of science is a "way of doing things" which has been applied with great success to diverse problems in health, medicine, agriculture, machine design, and so on. At its very base, science is founded upon careful observation and the gathering of facts. In astronomy, for example, countless observations were made before it could be demonstrated that the motion of the planets followed a regular pattern. In the fine arts it will be equally necessary to record and study the durability of pictures, painted and treated in various ways, before sound practices in painting and conservation can be firmly established. For many years it was not the custom of museums to keep detailed records of what a restorer did to their pictures. It was therefore difficult to "learn from experience" whenever a particular treatment had detrimental results. At present, much more attention is being given to observing and recording such facts. At the last meeting

of the Art Technical Section of the American Association of Museums a major portion of the program was devoted to this subject. Careful study of these records will contribute much toward building truly scientific techniques in the care of museum collections.

Scientific knowledge grows by systematic study. A definite intent, or purpose, is needed to guide experimentation, for random facts do not constitute science. Returning to the example of astronomy: when it was found that the seasons were reasonably well-ordered, the lengths of the day and of the year were measured with increasingly greater care, to determine just how regular they really were. As a result of these investigations, it is now possible to measure time precisely and to predict tides and eclipses far in advance. In the field of fine arts: when it was noticed that ancient marble and ivory fluoresced under ultraviolet light, this observation was carefully checked with thousands of objects. It was essential to determine if this was definitely a characteristic of old materials. Could the phenomenon therefore reliably detect modern "restorations" and fakes? It was found that modern pieces do not generally glow under ultraviolet light in the same manner as old materials. Because prominent museums supported these systematic investigations, their present staffs are often able to detect false items which might otherwise pass unnoticed. Careful study and repeated experiments had to precede the practical result, however; this is generally the case when applying science to practical problems.

In their investigations, scientists search for causes; this is another aspect of the method of science. For example, Sir Alexander Fleming must have asked himself, "Why should a certain strain of *Penicillium notatum* retard the growth of bacteria?" He found that the answer was not due to the mold itself, but to a substance yielded by it. His particular search for a cause gave us the wonder-drug, penicillin. In the field of fine arts curators

often wonder about the cause of fading in a particular picture, the cracking in another, the yellowing of varnishes. Here, too, the causes can be found. A scientist is especially trained to track them down. However, general questions require a long time to answer, specific ones are easier. Is the ultramarine in a picture the natural or the synthetic variety? Is the synthetic just as resistant to fading? Does the ground or underpainting in a picture contain titanium white? Were lead pigments lost in cleaning the picture? The answers to these questions can be very definite and are relatively easy to determine.

It should be pointed out, however, that a team of experts is needed to interpret the facts in the light of historical as well as scientific knowledge. For example, what good would it have done to discover, by spectroscopic methods, that Van Meegeren's faked Vermeer contained cobalt blue, if someone had not known that this pigment was modern and could not have been used by Vermeer? Notice, too, that the investigators were dependent on the previous systematic study of the pigments likely to be found in the work of a particular artist. At one time perhaps it was claimed that the study of the pigments used in old paintings was academic and could have no practical use. However, we never know in science when our facts will prove valuable. When Mme. Curie began her study of radioactivity she had no idea of its utility or of the practical consequences.

FACTS AND THEORIES

Why is a competent scientist so sure of his facts? In part, it is because the method of science involves the use of controlled experiments. How often have we heard an artist complain that, at one time, he tried a technique and it worked very well, but that he has never been able to repeat it? What could have been different about that successful time? Again, a scientist's training is especially directed toward solving such problems. Perhaps the day was



X-RAY PHOTOGRAPH OF AN OIL PAINTING

This is an artist's sketch, simulating the appearance of a typical photograph taken with x-rays. Note the losses in the cheeks and forehead and the cracks that exist in the original paint. Only the areas painted or underpainted in white lead are revealed. Retouching of lost areas was done in tinted varnish, not paint. Right eye was apparently painted in earth colors containing no white lead.

very humid, or perhaps something remained in the "clean" paintbrush used. A scientist controls these variables. In the work at Mellon Institute, for example, our samples of varnish are examined in a special room kept constantly at a definite temperature and humidity. Paints and varnishes are coated, not by use of a brush, which might well be contaminated, but with a stainless-steel paint-spreading blade.

Someone may ask at this point, "Are scientists really sure of their facts: are they positive of what an atom looks like?" There is an important difference here. Atoms and molecules are pictured as part of a theory used to explain facts. Theories and explanations guide our thinking until a better idea comes along; they are not infallible. At one time the effect of drinking an extract of poppy seeds was explained by saying that the goddess Ceres created the flower to help her forget the loss of her daughter Proserpine, who had been carried off by Pluto. Chemists now know that the sleep and forgetfulness is caused

by alkaloids, useful as drugs, present in the seeds. The explanation has changed, but the fact still remains that taking the extract will have certain definite effects.

If a technical adviser states that a picture has been painted with the ancient pigment, lapis lazuli, he will be certain. However, he is well aware that it is another problem to account for this fact. The co-operation of a team of experts is needed. The advice of historians, authorities on the work of a particular artist, and conservators with much experience in the care of paintings is essential to the proper interpretation of the facts.

IMPROVING METHODS AND MATERIALS

After careful observation and study, it is often possible to recommend improved ways of doing things. Illustrations are the air conditioning of galleries and the systematic recording of the treatment given to pictures. Besides improving methods, today there also exists the wonderful possibility of creating new materials. Modern chemistry is able to synthesize entirely new substances: synthetic fibers, plastics, special glasses, artificial rubber, and the like. Perhaps the most uncultivated area of all in the application of science to problems in the fine arts has been in this matter of introducing new materials. In painting, for instance, most of the materials in use today have been traditional for hundreds of years.

The development of a new and useful substance is always a difficult task. With artists' materials there is the added restriction that they must possess great durability. There is also the problem of handling quality. By this is meant the facility with which an artist can paint or carve in his medium. An example of the importance of handling quality, from history, is the popularity with which Van

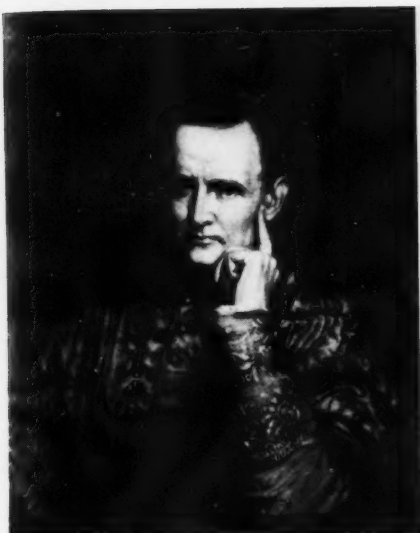
Dr. Feller holds the National Gallery of Art fellowship at the Mellon Institute of Industrial Research. Appointed in December 1950, he is currently investigating the permanence of artists' materials to find new materials and techniques for use in the fine arts, both for original work and for the conservation of museum objects. A graduate of Dartmouth College who took his advanced degrees at Rutgers in physical-organic chemistry, Dr. Feller's favorite hobby is drawing and painting.



X-ray shadowgraph shows that the artist painted over his first profile view of the head in the portrait opposite. The medallion also was painted out. A cross shadow is cast by the canvas stretcher.

Eyck's oil-painting technique was received in the fifteenth and sixteenth centuries. The oil medium allowed the artist much greater freedom than was possible with the egg tempera that artists were then using.

Whereas scientists are able to recommend very durable substances that might be tried by the artist, these are generally found to be difficult for him to use without special modification. Industry is constantly seeking new materials, but seldom with the artist in mind. It is to fill this important gap in the application of science to the fine arts that the trustees of the National Gallery of Art recently established a fellowship for broad research at Mellon Institute. The fellowship's first problem will be the development of an artists' varnish, using synthetic resins that will not crack or yellow as readily as do varnishes made with natural resins. Improved materials for supports and grounds may be investigated later. Orlon fiber and chemically-treated wood have already found use in place of canvas and natural wood as supports for pictures. These and many other materials will be appraised by many exacting tests in the research undertaken by this unique fellowship.



CARDINAL McCLOSKEY
(The first American Cardinal)
BY GEORGE PETER ALEXANDER HEALY
National Gallery of Art

Some new materials with which artists have experimented in painting are plastics such as Vinylite (polyvinyl acetate) and enamels such as Duco. Synthetic waxes have also been used for painting in wax-emulsion techniques and as adhesives and moisture-proof coatings in the conservation of museum objects. One of the experiments most interesting to the author, as a chemist, was the attempted use of ethyl silicate for mural painting. This substance quickly decomposes in the presence of moisture to form silica, the material found in sand and quartz. Think of painting in a medium that would become enamel-hard without baking or firing! Unfortunately, considerable difficulty has been found in the technical handling of ethyl silicate; it often quickly solidifies in the container before the artist has a chance to use it. Perhaps, however, this fascinating material, or a similar one, may some day be modified and developed especially for the artists' needs.

SCIENTIFIC TOOLS IN THE MUSEUM LABORATORY

The method of science has been outlined in considerable detail: the gathering of

facts, the systematic seeking of causes or possible explanations by means of controlled experiments in the laboratory, the suggestion of improvements based on the knowledge gained. Let us now consider the successful applications where science has already been of great service in the care of museum collections. The two most highly developed and widely used applications are the identification of pigments and the use of x-ray photography. The use of ultraviolet and infrared radiations has also been of great value, but these have not reached the stage of development that the first mentioned have. By photographic methods we are able to learn many valuable facts without even touching the work of art. As mentioned previously, the fluorescence of aged substances under ultraviolet radiation enables repaints and incompletely removed old varnish to be detected in paintings. Because relatively new material does not fluoresce as much as does aged substance, restored areas of marble and ivory sculpture can also be detected in this manner. Infrared photography, on the other hand, often permits us to see through dirty yellow varnish and thus to discover signatures that have faded or have been partially removed.

X-rays are stopped by heavy metals, such as lead. They thereby cast a "shadow" on the photographic film wherever white lead or other heavy-metal pigments have been used in a painting. It is possible in this fashion to study the underpainting of the masters, to detect retouching, and to locate cracks and losses of original paint. When an x-ray examination was made of Van Meegeren's faked Vermeer, the outline of another picture was found. Van Meegeren had purchased an obscure seventeenth-century painting upon which to work, because the one thing that could not be faked was an old canvas. He knew that x-rays would reveal the old picture beneath his own, but was unable to scrape every last trace of it away before beginning the new painting. Dr. van Schendel, curator at the Rijksmuseum in Amsterdam, had the good fortune to discover a photograph of the very painting that was revealed to be underneath the "Vermeer"! Could an authority on the paintings and style of Vermeer have been as positive as the evidence supplied by these photographs?

Microchemical analysis of pigments requires but a speck of material; only four ten-thousandths of an ounce of pigment is necessary for an accurate analysis. Samples may be taken at the edge of the picture, near the frame, and therefore contribute little harm. In addition, a hollow needle has been especially developed to take a tiny core from a picture, much as an apple-corer removes a cross-section of an apple. By this technique, the various layers of paint and varnish may be examined under a microscope. This is much the same as a geologist would investigate what is below the surface of the ground, without digging up everything. Spectroscopic analysis also requires a very small sample. In this process, the samples are burned in a carbon arc and the light passed through a prism. The colors in the flame are spread out just as the spectrum of the sun is when sunlight is passed through a prism. Although Van Meegeren was careful to choose the natural variety of ultramarine, lapis lazuli, in faking the work of Vermeer, spectrographic analysis detected traces of cobalt blue, a modern pigment that must have

accidentally contaminated his paint.

The analytical methods just described have proved indispensable to the solution of problems in many fields. It is hoped that museums will take further advantage of these techniques in the future. It would also be advantageous if support would be given to long-term investigations, such as improving the methods of cleaning and relining pictures. At present, extensive studies are being undertaken by relatively few museums throughout the world. The newly formed International Institute for the Conservation of Museum Objects will endeavor to co-ordinate and further this work. This organization deserves whole-hearted support in its effort to bring scientific techniques into greater service.

By illustrating the method of science with appropriate examples, this article has attempted to show that analytical, photographic, and chemical techniques play a vital role in the care of museum collections. It is hoped that this discussion will lead to a better understanding of the opportunities inherent in the application of science in the field of fine arts.

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THE ONCOMING TIDE OF YOUTH

WILLIAM R. OLIVER



BIRTH statistics are not necessary to convince a children's librarian that there was a great increase in the population of America during the forties.

Millions of children were born, and to the delight of the toy manufacturers, among others, the trend is continuing into the present decade. This increasing tide of children is assailing the libraries, demanding, as does each generation, books to supply both recreational and educational needs. New reading facilities must be provided, and circulating books must be made available in ever greater numbers.

The material progress of Pittsburgh is apparent in its new office buildings and highways under construction and in its extended industrial expansion. The necessity for a parallel, cultural renaissance now is being emphasized by Wallace Richards, whose vision has inspired the city's rebirth. It is most fitting that the boys and girls division of Carnegie Library should be among the first to join in this second phase of the Pittsburgh program. It is in the schools and the libraries of the city that the minds of the Pittsburgh of twenty years from now are being formed—in them is being determined the nature of the direction of the city of tomorrow.

It is primarily through books that the young can obtain information and inspiration and the knowledge which derives from them. The present world of confusion can be partly blamed on leaders who did not read when they were young and who apparently read little now. Even a slight knowledge of history would have enabled them to arrive at decisions that would have

avoided the disasters brought upon us. Some have expressed the belief that the learning process, which always has been slow, can be speeded by use of the new means of communication, by the movies, by radio, by television. At best these are and will continue to be only supplements to the education that can be obtained from books. At worst—and most of the mechanical programs fall in a substandard category—the distraction, distortion, falsification, and the baseness of the taste displayed exert an anti-educational influence particularly insidious because of the program's fascination for children. Virgil M. Hancher, president of the State University of Iowa, has written that education is designed to shorten human experience: "It endeavors with ease and economy to bring each succeeding generation up to date with respect to the past and to make it at home in the world. In this sense it prepares each generation for life." Most radio and television programs depict a life that never was and prepare children for a life that never will be.

The library, then, has to combat new allurements and enticements for the mind of youth. It has new competition for the precious and the brief time given to youth in which to prepare itself for leadership in the world of tomorrow. Its education, as President James B. Conant of Harvard has pointed out, is not to be gained by a quick victory—"Citadels of ignorance are taken not by frontal assault but by long siege operations." The extended activities lie in extracting truth and inspiration from the printed page. The library is the repository of books; it is the storehouse of the weapons of knowledge.

The necessity for renovating the boys and girls division thus was forced by the increasing tide of children and by the new competition for their time and interest. To attract their youthful minds to books sufficiently early is the objective because, in most cases, that interest will continue. Postponed past a certain age, reading becomes a hardship and continues to be so

Mr. Oliver, a trustee of the Library and Institute, has taken an active interest in the boys and girls division of the Library which stems, no doubt, from his own love of books old and new and of his four quite new grandchildren. The display, 300 YEARS OF CHILDREN'S BOOKS, a few years back, and the recent King Arthur exhibit and story-telling program of the division were organized with his help.



BOYS AND GIRLS DIVISION, INSTALLED IN 1908, WAS A GOOD BASIS FOR REMODELING

through life so that the full capacity of the child can never be realized. Children, traveling alone in the world of books, are more likely to avoid that pitfall so lucidly described by Elliott Dunlap Smith, provost of Carnegie Institute of Technology, as "a mental condition where they hunger and thirst after the clear convincing voice of dictation that takes the responsibilities of self-reliant thought off their burdened minds."

The old library rooms, designed and installed in 1908, were not unattractive. Most fortunate were they in their spaciousness, a feature lacking in most libraries of today and which, because of increased building costs, probably will not characterize the libraries of the future. To the observer, the worst feature appeared to be the lighting by means of inadequate incandescent bulbs that failed to illuminate the lower shelves of the cases. Inevitably searching eyes were strained in attempts to discern titles. Books and reading habits cannot be forced upon children, but at least the conditions under which books are sought and read could be made better and the facilities for providing books improved.

Investigation revealed that a higher level of illumination demands furnishings lighter in color so that the eye is not called upon to make an impossible adjustment. This is particularly true of tables and desks on which books are read—the contrast of the white page with the surface of the table must not be too great. It therefore appeared that the old, dark mission oak finish of the early part of the century should be replaced. The dark red rubber tile of the floor, which absorbed so much light, also could not continue. It was a forward step that a recent City bond issue had provided funds for a new floor, the color and tone of which was to be selected by the Library.

The Pittsburgh Foundation next was approached. It showed interest and asked for definite plans. Fortunately, at this point, Mildred Schmertz responded to the Library's request for professional advice and, recognizing the civic nature of the project, willingly volunteered to be the planning consultant. She brought with her a background of five years of training in the school of design at Carnegie Tech and five years as a practising interior designer in

the firm of John Schurko. With her knowledge of materials, methods, and workmanship, she recommended the firms which were capable of handling the undertaking.

The committee working on the renovation consisted of Miss Schmertz; Virginia Chase, head of the boys and girls department; Laura E. Cathon, head of the central boys and girls division; Kenneth C. Welch; Roy B. Ambrose, manager of buildings and grounds, Carnegie Institute and Library; and Ralph Munn, director of the Library. The committee secured a sample of the new finish of the woodwork and using it as a guide selected the linoleum. The installation of the flooring was the first completed step in the program. The lighting bid of Pittsburgh Plated Products, which manufactured the fixtures, and the estimate for the cabinet work by C. Proessler and Son, Inc., were submitted to the Foundation. But when the bids of firms to install the lighting fixtures were received, the total costs far exceeded the budget and it was thought the whole project might have to be abandoned. At this point Mr. Ambrose volunteered the services of his expert staff to install the 898 feet of fixtures and fluorescent strips. His staff also repaired hundreds of file drawers, altered book racks, and installed metal stripping in them to hold the shelves. It replaced the marble bases of the furniture and refinished all the hardware. At the end it repainted the rooms.

The Pittsburgh Foundation, having approved the project, authorized the grant from the Wherrett Memorial Fund, and the contracts were let to the above firms. The extent of the lighting fixtures has been mentioned. The transforming of the woodwork to a lighter finish required that 450 shelves and some hundreds of drawers be taken to the finishing mill for stripping, sanding, and shellacking. The 110 pilasters between the tiers of shelves were to be refaced with new oak strips of veneer in the same light tone. Too, the tables and benches were to be remodeled with new micarta tops of several light colors for the tables and terra-cotta linoleum seats for benches. The plans also included redesigning of the window benches and the replacing of two of these with illuminated display cases. At the same time the Library would purchase a considerable

amount of new furniture including desks, chairs, a magazine rack, and finally, window shades of vertical beveled wooden strips to permit desirable control of the outside light entering the rooms. But more than material equipment, the staff of the boys and girls division was to contribute tolerance to the inconvenience brought by the work and good will to the many craftsmen performing it. Not once in the fifteen months consumed by the project was there a complaint, but only expressions of happiness in anticipation of the better library to be.

The painting of the walls and the refinishing of several of the large doors by the Library building staff now is bringing the undertaking to a close. The sandalwood, grey, and yellow color pattern of the walls was selected by Miss Schmertz with most pleasing results.

The staff of the Library and its trustees are most grateful to her, to The Pittsburgh Foundation, and to Mr. Ambrose and his men who showed an interest in the work far beyond their duty. Their reward must lie in the knowledge that they have contributed more than generously to the rebirth of our city and its preparations for the citizens of tomorrow.

[In this account of the modernization of the boys and girls department of Carnegie Library Mr. Oliver gives generous credit to every participant except, of course, himself. According to Director Ralph Munn, "Actually the idea itself originated in Mr. Oliver's mind. It was he who made the initial contact with The Pittsburgh Foundation, and enlisted the services of Miss Schmertz. From beginning to end Mr. Oliver was the leading force in bringing light, color, and an atmosphere of modernity to these rooms."]

MODERN ILLUSTRATION

NEW HORIZONS IN CHILDREN'S BOOKS, an exhibit of drawings and paintings together with the published books for children which they illustrate, will be featured this month in the boys and girls division of Carnegie Library. Elizabeth Rockwell Raphael is assembling and arranging the display. The date for formal opening of the remodeled rooms will be announced later.

IT MIGHT HAVE BEEN

Reviewing the autobiography of the Duke of Windsor, "A King's Story"

SOLOMON B. FREEHOF



AN American poet said, "Of all sad words of tongue or pen, the saddest are these: 'It might have been.'" And of course "It might have been" is the text of some of our saddest thoughts, particularly when life has not gone well, when retrospect recalls disappointment and error. When a person's life has in important phases failed, it is almost inevitable that in his later years he will submerge himself into the dark and bitter waters of sad recollection and ask: "What did I do wrong? Should not I have made another choice? Should not I have solved the problem differently than I did thirty years ago? If only I had done A instead of B, my life would not have been the failure that it now is and I would have attained the success of which I had dreamed in my youth." All these sad and tragic thoughts when life has disappointed us are self-addressed sermons on the text, "It might have been."

We can understand how a person who is what the world terms a failure may find sorrow in his recollections and bitterness in his might-have-beens. But the strange thing is that even those whom the world terms a success are likewise addicted to that self-inflicted sorrow. Perhaps the greatest success from the worldly point of view of all the vast gallery of scriptural characters was the great and the brilliant and the rich and successful King Solomon. Yet at the end of his life he wrote a book that might be described as the biblical version of "It might have been," a sad book of recollection and regret, his famous book *Ecclesiastes*, the book that repeats in tragic refrain "Vanity of vanities, all is vanity." Solomon thinks back on his early days when, having all the resources of the kingdom at his disposal, he indulged in all sorts of pleasures and expensive joys. Now he looks back and says, "If I only had not squandered my youth on these transient joys. Now I know that was vanity of

vanities." Or he says then: "It is not only pleasure which is a disappointment; I also went through a constructive period and built palaces and gardens; but now when I look back on all the energy that I poured out I see it too was vanity of vanities." Thus there is an entire biblical book dedicated to "the saddest words of tongue or pen," the might-have-beens of life.

One does not need to go as far back as the Bible to discover that even successful men have these sad solemn thoughts. Whose career of modern times in the history of English statesmanship is the most remarkable? Surely that of Benjamin Disraeli, Lord Beaconsfield, a man who in the aristocratic stratification of British society could begin as a nobody yet end up as England's most beloved prime minister, whose birthday is celebrated above all by the Tories on Primrose Day. Such a success story has not been equaled in America, the native land of all success stories. Yet this most successful man in one of his novels reviewing life, expressed himself in this bitter epigram. He said, "Youth is a blunder, manhood is a struggle, and old age a regret." Evidently there is a connection between both ends of this triad. Old age is a regret because youth is a blunder.

The fact of the matter is that what inevitably leads in human life to sad rethinking of our career is the fact that youth is so frequently blundering; and it is blundering because too much responsibility is generally placed upon it. Our great choices in life, our "continental divide" decisions—career and life and love—are all made at the time of our most dangerous personal immaturity; precisely at the time when the wild horses of the emotion toss their heads against the reins of reason. It is in our wild and tempestuous youth that we make the decisions which more than anything determine our maturity and our old age. These are bound to be mistaken, or at least we are bound to think in later years that we could have done differently

had we our later intelligence. Therefore, whether a person is successful or not successful, of one temperament or another, there comes a time when he must indulge in the rethinking of life and ask himself the sad question, "What might have been different?" They are always the saddest thoughts.

Of the choices which youth must make, the choice of love and marriage is the most fateful of all. Of three decisive points of life—one's birth and one's marriage and one's death—of these three, only one—marriage—is dependent upon our own decision; and this is so awesome a decision that no wonder even the most superficial bride and bridegroom tremble as they stand at the marriage altar. Young people, swept by inevitable and irresistible tides of emotion, determine in that tempestuous mood all their future career. That great and fateful decision is rethought constantly all through life. There is not a human being who does not sometimes ask, "Suppose I had chosen differently!" It is not that the person regrets his actual choice in marriage, but with marriage comes a whole succession of other decisions, and it is these decisions that are frequently regretted or often questioned. A young couple decide they will live in this city rather than in that city; this salaried position will be taken instead of breaking away and taking the chance of working for oneself; this profession instead of another profession. All these ancillary decisions which depend upon the basic decision of marriage are the things that are often rethought because as Scripture has said, "Therefore, a man must leave father and mother and be by his wife." He cannot choose to be married without choosing fifty other decisions. Thus, often in the happiest marriage these decisions are the subject for rethinking. Could they have been different? Could they have been better?

The most romantic marriage, the most exciting love story of our day was that of the present Duke of Windsor and his wife, the American girl from Baltimore, Wallis

Warfield, Wally Simpson. No romance was as conspicuously portrayed after being blatantly heralded in the press of the world; and no decision made by a groom was accompanied by a wedding with more fateful import than the decision that this average decent boy had to make. It would have needed a Plato or a great statesman to evaluate adequately the decisions which he had to make; yet such fateful decisions fell on the shoulder of an ordinary life-loving, joy-loving modern boy.

It is those great decisions which I am sure at the age of fifty-seven are forming the text of some of the "sad thoughts of tongue and pen." There is no evidence that the marriage itself is being rethought and questioned in his mind. We have no right to assume it, although we would have a right to discuss it. When a person does his courting in the glare of the world's publicity, he should not be hurt if some of the difficulties of the marriage are likewise discussed in the world's forums by whoever considers it important. But there is no evidence of difficulties in the marriage. There is clear evidence in his book that the great decisions which that marriage necessitated are beginning to nag at his consciousness.

After all, to a man of fifty-seven the round of night clubs and the journeys from southern France to other climes in a regular circuit of pleasure no longer appeals quite as much as it did to a man of thirty. He thinks now what he gave up: British Empire struggling in its most historic phase of the battle for self-preservation; his younger brother is now the symbol of British loyalty, and not he; and what is there left for him in the world! He is beginning to rethink his life, and writes out his thoughts.

The chief question that concerns him is the abdication, although it is not dealt with except at the end of the book. "Did I have to pay so great a price after all? Perhaps it was not my fault that such a price of lifelong inaction was exacted from me." He begins to look for people to blame, and records for the first time that Stanley Baldwin and the Archbishop of Canterbury, Cosmo Lang, were perhaps villains of the story. At all events he says, "There have been many misunderstandings, and before they are recorded in history, I am

Dr. Freehof is rabbi of the Rodef Shalom Congregation. This review is taken from his series of public lectures this autumn at the Temple.



WINDOWS . . .

SYMBOLS OF CULTURE

For many, many centuries man existed in structures without windows.

We ask ourselves why? The answer is simple—there was no glass for windows.

It was not until about the 12th Century that glass was used in windows to any appreciable extent. Glass was a rare and costly material. In many countries today, window glass is still a luxury which only the rich can afford.

During the 18th Century windows came into their own. The large bay window was widely used in England. This provided a room with a view and reflected the high level of culture of the 18th century.

The glass window became the subject of literary and historical writers. Some called it a symbol of cultural development. They pointed out that the glass window made it possible to open mankind's dwellings and minds to the wonders and beauty of nature.

Just as the glass window signifies cultural progress so does the name Pittsburgh Plate Glass Company signify superior quality in glass for home glazing.



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abandoning after fifteen years the reticence that is expected of a king and I am going to tell my side of the story." Thus he begins his biography with nostalgic reminiscences of his onetime glory. He does not call it "The Duke of Windsor's Story" but touchingly enough, "A King's Story."

He begins with his birth, because, after all, the birth of an heir apparent to the throne of a great empire is a matter of great moment. He tells of the education of a royal child. In the development of his career he leads us through the immense changes from the Victorian, through the Edwardian, to the modern era, and ends with the most moving address ever given by a young king, "At long last. . ."

It is an informative and a touching book. First of all there is much in it that the average person could not have known. The conspicuousness of kings and princes is only a stage-managed and selected conspicuousness. Most of their life is actually hidden from the world. This is the first intimate picture of the training and development of a young English prince, and because the climax of his life has to do with an American girl, it invites the obvious comparison with American life.

It has been frequently complained of and bemoaned by those to whom it matters that the old Four Hundred in American society has now ceased to exist; that it has been supplanted by another type of society, the *café* society. This may be true, but it is certainly not surprising to Americans because the essential characteristic of America is the shifting of the social scene. Fortunes are not permanent here. New fortunes are made and it is not surprising that one stratum of society should supplant another in prominence and in leadership. *Café* society takes the place of Newport society and what of it!

But in England this is a much more serious matter. The social stratification is not determined by mere wealth. As a matter of fact, for many centuries in British society the possession of recently earned wealth was an evidence of unfitness. A merchant, an industrialist, still would be looked at askance in the higher levels of British society. Society was hereditary, based upon landed estates in the country, confirmed by a whole gallery of family portraits. Each level of nobility fitted into

its place in a hierarchy and at the summit of it all was the Royal Family. All that was in the fabric not only of English life but of European life. Thus while the changing of the scene in the social stratification in America was normal, in Europe it seemed impossible. How could you overthrow such a pyramid?

But a great World War came! Millions were killed, children of the nobility as well as children of the common people. There was poverty! It was a world of revolution. European society was almost wiped out and English society shaken. Thus the same recklessness of spirit, the same impossibility of maintaining the old dutifulness of Queen Victoria which swept over America in the jazz age, swept over Europe and England too. And David was like a hundred thousand other boys. No blame adheres to him. They were boys and girls to whom life was simply a succession of "fun and games." The age of Queen Victoria had disappeared together with the social stratification of which it was a part.

How serious this was in England is hard for Americans to imagine. After all, suppose our so-called society does overturn and other groups take its place in prominence. First of all who cares? Who cares whose photograph appears in the society pages? People are, of course, interested but we all know it does not matter. As a matter of fact, the change in social status is one of the glories of America. Few fortunes remain permanent except perhaps the Astor fortune, based upon furs, or the Vanderbilt upon shipping and early New York real estate. The old fortunes generally vanish and new fortunes come. If the top of society does not remain the top, it is only part of the same phenomenon which means that the bottom does not remain the bottom, and the slums do not remain slums. We are the only country of the world without permanent poverty. This dynamic quality of American life is its glory. So what does it matter if social mandates are dictated no longer from Europe but from the Stork or the Colony Club?

The social change is a glory to America, but not so to England. Not only is the social hierarchy part of the fabric of old English historical life, but the royalty which is its climax is also the head of the

church. It is the defender of the faith. The King is anointed by the Primate of England with sacred oil, and he represents the old faith, and therefore what would be all right for Commodore Vanderbilt's descendants is not all right for Queen Victoria's great-grandson. Too much is involved, not only the English society, but also the English religion, and the English ethical ideals.

The royal family in England is a symbol of the good family, of decent people, of basic modesty. Queen Victoria meant all that and David's father's family meant that, and behavior which would be easily forgiven and should be forgiven in others cannot be forgiven in the exemplar, the symbol of all that is noble, the ideal of what every family wants to be like. All that is what the royal family meant to England. It is well enough for Vanderbilt's son to marry the daughter of a coal miner. We rather like it after our first surprise, but that will not do in England. Too much is involved.

This was his destiny which caught him, a child of the age of fun, of the age of Fitzgerald, who could have emerged from all that, or even if he did not, could be forgiven. But that child, when he happened to be the great-grandchild of Queen Victoria, was caught in a vise of circumstances. It was a serious matter for England, whether the fun-loving era symbolized in David meant that this had now become the model mood for all of British society. The British are a small nation now with limited resources yet with immense responsibilities. They cannot maintain themselves or their self-respect without the old sturdy qualities of Queen Victoria, without austerity, self-denial and devotion to duty. And if England had become night-clubby in its mood, the great Empire would be lost forever.

But it was not to be so. David was followed by his brother, and his brother was very much like their father—quiet, dutiful, doing what is expected of him and bearing the burdens of office. There is, after all, something basically sturdy in English character. It can live through misfortunes as it can live through wild hilarity, without being broken.

As for David it was "not in himself but in his stars." No one can blame David. It was not Baldwin or Archbishop Lang who

were the villains. You are not the villain either, David! A boy situated as you were could not live as hundreds of thousands of other boys lived. Destiny caught you in its grip. You made a decision. May it bring you happiness, but the moving finger has written and nothing can change it. Now your old friend, Winston Churchill, is back in power, and it will not be you who receives him in the Palace. It will be your brother. As for you, you will age. May you age in happiness with the woman of your choice, but in the passing years, the night clubs, the Riviera, the weary joys—these are your destiny. That is the heart and the heartbreak of A KING'S STORY.

FACT CENTER

Room 402 Frick Building is the new location of Carnegie Library's Business Branch. Hours are 9:00 A.M. to 6:00 P.M., Monday through Friday. The new telephone is ATLantic 1-5945.

A fact center for all business information, industrial trends, and financial developments, the Branch was established in 1924 to make library services more accessible to people working in the city. Forced to move from its location on the second floor of the Union Trust Building in August 1950 because the offices were needed for the State Civil Defense, it has temporarily been located at Central Library. Anna B. Pomeroy heads the Business Branch.

OPERATION "CLINKERS"

[Continued from page 45]

Because of the loss of the sounding lead, our navigating was more than shabby, but the reef was cleared and anchorage was made in the clear blue water of the bay. Here, to our joy, we found the friendly yacht, *Ruana*, which had preceded us from Panama.

Impatiently we waited for El Comandante to inspect our papers. With the usual delay he appeared with his Ecuadorian secretary, the port physician (a pharmacist), and a handful of beachcombers, along for the ride. Their mission was completed after the ritual of rum, and we were given the debatable privileges of the island as the graven features of Charles Darwin scanned us from the pier.

[To be continued]

OUR NEW TRUSTEES



MR. DINAN



MR. SCHIFANO



MR. FAGAN



MR. RODGERS

CITY Councilmen Charles F. Dinan, Patrick T. Fagan, Bennett Rodgers, and Emanuel F. Schifano have recently been appointed to the board of trustees of Carnegie Library of Pittsburgh, which carries with it membership on the boards of Carnegie Institute and Carnegie Institute of Technology.

Mayor David L. Lawrence, Council President Thomas J. Gallagher, Frederic G. Weir and A. L. Wolk, of city council, continue as trustees.

Mr. Dinan was elected Allegheny County treasurer in the fall of 1947. A graduate of high school and business college, he served with the Army in World War I and was with the Army Surplus Property Division before becoming associated with Cruikshank Bros. In 1936 he became office manager for the County department of works, and six years later was appointed personnel secretary for the board of county commissioners. He is a director of the Downtown Boys Club and the Catholic Youth Association and belongs to various veterans and fraternal organizations.

Mr. Fagan took his seat in City Council in January 1950. He started working in the coal mines as a boy of twelve. In 1922 he was elected president of the United Mine Workers and served twenty-one years, without salary from 1937 to 1939 when he was a member of the State Labor Relations Board. From 1943 to the close of World War II he was Western Pennsylvania director of the War Manpower Commission and when this returned to State Employment Service became district manager.

Mr. Rodgers has been in the law department of the City of Pittsburgh since 1935. From 1929 to 1933 he was a voluntary defender for the Legal Aid Society. He studied at Shadyside and Choate Schools, was graduated from Yale University in 1923. He studied law at Kings College, Cambridge, and was graduated from the University of Pittsburgh law school in 1927, then entered private practice.

Mr. Schifano has been assistant city solicitor since 1941. In the past he has been United States representative on the Allied Screening Commission in Italy, assistant military attache at the American Embassy in Rome, and chief of law enforcement, bureau of professional licensing for Pennsylvania. A graduate of Pennsylvania State College and Duquesne University law school, he entered private practice in 1926. He served in the Navy in World War I and the Army air corps during World War II. He is a member of Sarah Heinz House Alumni Association and Overbrook Board of Trade, a director of South Hills Boys Club and Cub Scouts, and a member of various veterans organizations.

*Art and Nature
Shop*

TINY BUT INTRIGUING BIRTHDAY GIFTS

DO YOU KNOW YOUR "COMMANDMENTS"?

RECENTLY Admiral Ben Moreell good naturedly accosted the editor of *CARNEGIE MAGAZINE* with the startling statement that he had been furnished incorrect information by the reference department of Carnegie Library of Pittsburgh. He said that during his preparation of an important address he had asked a member of his staff to verify from Carnegie Library the fact that the biblical commandment, "Thou shalt not steal," constitutes the eighth commandment, and that the Library had reported it constitutes the seventh commandment. This statement of the Library, he contended, was erroneous.

Your editor, with a lack of ready information on the subject and with full knowledge and admiration of the Admiral's biblical information, mildly parried this rebuke but with a deep-seated conviction that the Carnegie Library could not be wrong. Subsequent research revealed that both Admiral Moreell and the Library were correct.

This investigation indicates such universal surprise among the people contacted that any variation exists in the numerical listing of the Ten Commandments that the editor felt the following memorandum, prepared by Ralph Munn, director of Carnegie Library, and his staff, might be of interest to our readers.

—J. M. B.

Is "Thou shalt not steal" the seventh or eighth commandment?

This seemingly simple question, recently asked in the Library's reference department, has brought new light to the librarians and to many other laymen with whom the question has since been discussed. Several leading clergymen have been queried and even they, with their seminary days far behind them, could not recall exactly what is involved.

The commandments are not numbered in the Bible, but comprise Exodus XX, verses 2 (or 1) through 17. They are also given, with considerable change in wording but not meaning, in Deuteronomy V, verses 7 (or 6) through 21.

The variation in the beginning verse, as noted above, is due to the fact that in the Jewish church the introductory words "I am the Lord thy God. . ." form the first commandment; in other religions this verse is regarded as merely prefatory, since it contains no command.

Arguments concerning the numbering of the commandments go back to ancient times, and have since been commented upon by many theologians. The difference is due to variant divisions of the first and last verses. "Thou shalt have no other gods before me" is stated alone as the first commandment in the version adopted by most Protestant churches. The Roman Catholic and Lutheran churches, however, combine this verse with those which follow and which relate to graven images; in Jewish texts they are combined and form the second commandment.

In both Exodus and Deuteronomy the last commandment relating to covetousness is contained in a single verse, but the Roman Catholic and Lutheran churches divide this verse. In their versions the prohibition against coveting a neighbor's wife becomes the ninth, and the coveting of other possessions, the tenth commandment.

Certainly no numeration can be now said to be right or wrong. Each system has the backing of scholars, and official church adoption. The only sure way of avoiding confusion is to quote the commandment in full, or state the subject with which it deals.

To return to our question, "Thou shalt not steal" appears as the seventh commandment in the official texts of the Roman Catholic and Lutheran churches. It is the eighth in other versions.

This statement has been reduced to the bare essentials. The Library can furnish an armful of books to anyone who may wish to explore all the intricate historical issues which are involved.

The table given at the top of the opposite page shows the numbering of the commandments according to the three systems.

NUMERATION OF THE TEN COMMANDMENTS

COMMANDMENT	GREEK AND PROTESTANT EXCEPT LUTHERAN	ROMAN CATHOLIC AND LUTHERAN	JEWISH
I am the Lord thy God, who brought thee out of the land of Egypt, etc.	Preface	Preface	1
No other gods	1	{1}	{2}
No graven images	2	2	3
Name in vain	3	3	4
Sabbath day	4	4	5
Honor father	5	5	6
Murder	6	6	7
Adultery	7	7	8
Stealing	8	8	9
False witness	9	9	10
Covetousness— neighbor's wife	{10}	10	{10}
neighbor's house etc.			

CARNEGIE FILM SERIES

MANY fine documentary, fictional, and art films of the past and present are seldom shown. In this new Carnegie Film Series on eight Wednesday evenings, beginning February 6, some of these outstanding feature pictures and shorts will be presented.

The late Robert Flaherty was a pioneer in the art of seeing. In his first documentary picture he chose not just to photograph human beings but further to interpret their activities. *Nanook of the North* emerges both as a vivid portrayal of the epic struggle of the Eskimos against hunger and cold and as an intimate picture of Eskimo family life. Without it, later films such as *Edge of the World* and *Farrebique* would perhaps not have been produced.

The art film seeks to focus its light on the worlds of painting and sculpture. Here the camera is interested in the work of art as, for example, the prehistoric frescoes in *Lascaux* or the plastic mobiles in James Davis' *Light Reflections*. By close-ups and slow motion the art film can give a detailed as well as a general view and can add much to our art appreciation.

The movies will be given in Carnegie Lecture Hall at 8:15 P.M. Season tickets at \$5.25 may be obtained by mail from Mrs. Charles P. Orr, 5200 Westminster

Place, Pittsburgh 6 or by telephone, MU-seum 2-8127. Single tickets will be sold for 75c at Lecture Hall before each performance.

The films selected for the series are examples of the camera's versatility. The series is here given with the feature listed first for each date, followed by the film shorts.

FILM SERIES

February 6—	NANOOK OF THE NORTH RUBENS
February 13—	THE LADY VANISHES MYSTIC LAMB STARS AND STRIPES
February 20—	EDGE OF THE WORLD TRANSFER OF POWER LIGHT REFLECTIONS
February 27—	THE STONE FLOWER THE MOOR'S PAVANE MEMLING
March 5—	(Program of Shorts) THE RIVER (Mississippi) RHYTHM OF AFRICA BROTHERHOOD OF MAN LASCAUX: CRADLE OF MAN'S ART BEGONE DULL CARE LOONY TOM THE HAPPY LOVER
March 12—	FARREBIQUE BALZAC GEOMETRY LESSON
March 19—	CRIME AND PUNISHMENT THE LOON'S NECKLACE
March 26—	BERKELEY SQUARE ALEXANDER CALDER: SCULPTURE AND CONSTRUCTION

Fossil Parade

VERTEBRATE PALEONTOLOGIST AT WORK

JOHN A. DORR, JR.



By profession a student of fossil bones, the vertebrate paleontologist when he ventures among laymen is often presented with bones of contention, old enough to have become fossilized yet still in need of picking. "You study fossil skeletons, but what do you actually do?" That question, with its veiled implication, is annoyingly frequent. And when I head westward each summer for what I hope will be a productive season of field work with pick, shovel, and elbow grease, friends invariably dampen my zeal with the well-meant injunction, "Have a good time on your vacation!" I would like to take up both these challenges at once by inviting you to follow an actual research project from beginning to end in brief summary, thus seeing what one vertebrate paleontologist does some of the time, and the kind of problems that are dealt with by the section of vertebrate fossils at Carnegie Museum.

For almost 400 million years, from the beginning of the Cambrian Period until the late Cretaceous, the Rocky Mountain region was low and relatively featureless. The earth's crust was never greatly deformed during that time, but minor fluctuations permitted the transgression and regression of a long series of shallow epicontinental seas around and beneath which a sedimentary veneer of varying thickness was deposited. Then, beginning about 120 million years ago, deep-seated forces subjected the crust of that region to a long period of deformation known as the Laramide Orogeny. The growth of the Rocky Mountain chain had be-

gun and a variety of geologic structures developed. Deformation occurred in several phases which were not simultaneous everywhere. The broad features of this growth are well known, but details are lacking for many areas. Let us look at one such area.

The Hoback Basin, sixty miles south of Yellowstone Park, is a place of great natural beauty and interest. (I must admit it could be a vacation paradise.) The perennially snow-capped peaks of the Hoback and Gros Ventre ranges hem it in on three sides. U. S. Highway 187 climbs a low divide (8,000 feet) to enter the basin from the south, crosses the basin diagonally toward the northwest and then plunges through the Hoback Range following the Hoback River to reach Jackson Hole. A few dirt roads lead from the highway to ranches, but the paleontologist must examine most parts of the basin and surrounding ranges on foot or horseback. He can sometimes follow trails, but often he must scramble over rough terrain or force his way through timber-tangles.

The basin began to form some time during Laramide time. The rapidly accumulating products of erosion were flushed by running water down the steepening sides of the rising highlands into the basin,



EXCAVATING REMAINS OF A UINTATHERE, AN EOCENE MAMMAL HAVING NO CLOSE LIVING RELATIVES, IN THE HOBACK BASIN

which obligingly deepened as it filled to permit the deposition of a great thickness of sediments. Those sediments progressively turned to rock and are known as the Hoback formation. Finally, when the causes of unrest reached a climactic stage in that area, the earth's crust was gripped in a vise of compression. Great segments of the crumpling crust were torn loose from their foundations. These sheets of rock were thrust many miles eastward before they came to rest, overlapping in shingle fashion, on top of the relatively young



JACKSON THRUST AS SEEN AT BATTLE MOUNTAIN, WYOMING. OLDER ROCKS ABOVE DOTS WERE THRUST UPWARD, EASTWARD.



LOWER JAW (4 1/4") OF AN EARLY CARNIVORE THAT HELPED DATE THE HOBACK FORMATION

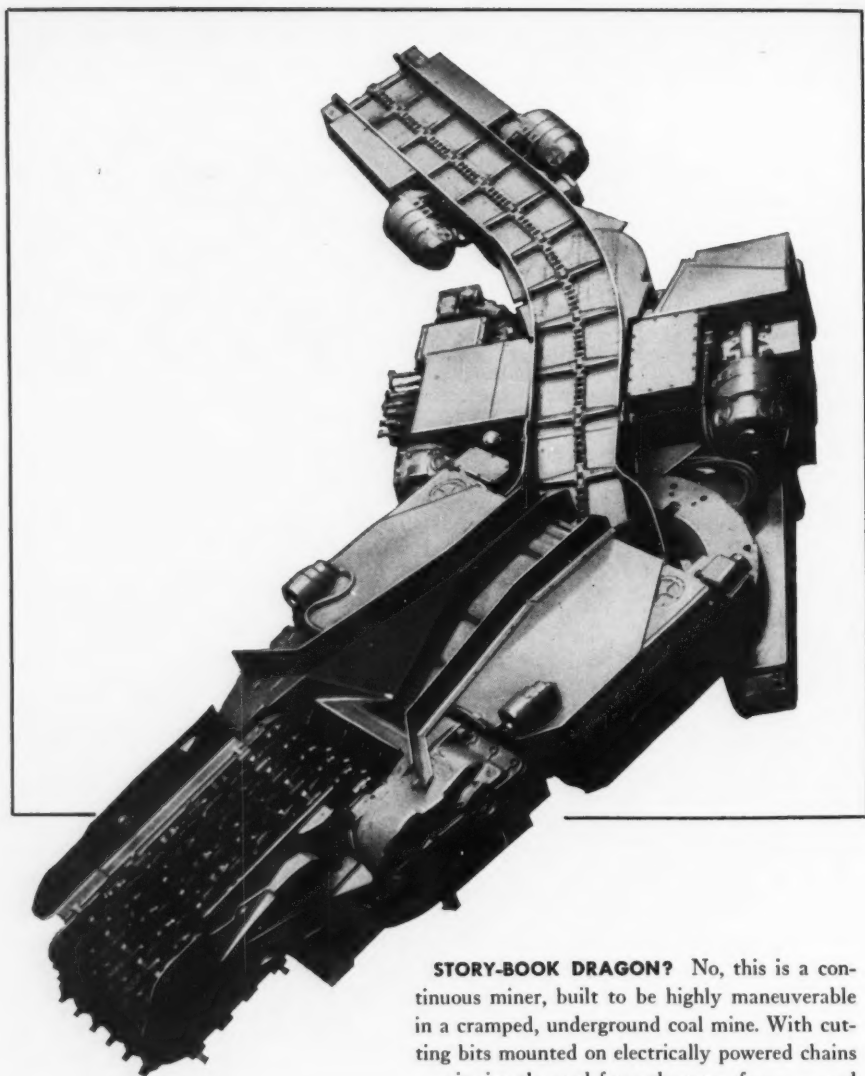
Hoback formation. In this manner older rocks from deep below were left lying over younger rocks.

There are other chapters to this story, but let us stop here. So far the story was known before I went to work in 1947. What had happened was clear from the reverse order in which old and new rocks were found as observed in the exposed rocks of the Hoback Range. Erosion etched those mountains out of the thrust sheets and left them standing in relief during a much later cycle of uplift and erosion. But exactly when had Laramide thrusting occurred, and what were the characters of the region and its inhabitants during that time?

One morning, aware of these problems but not expecting to come upon the means of their solution, I was climbing along a steep talus slope when I began to slip. Clutching a projecting rock for support, I

felt it break away in my hand and split in two pieces. As I slid downward I looked at the piece in my hand and found the unmistakable impression of a jaw! Marking the fall of the other piece, I retrieved it. There, beautifully exposed, lay a tiny fossil carnivore jaw. With this encouragement I spent many days there, laboriously quarrying and breaking the rock in hope of finding more specimens. Much of this labor proved fruitless, but a tooth or jaw would be found often enough to revive my enthusiasm. The possible significance of these discoveries was immediately apparent. Among other things, the sequence of life through the ages is rather well known, and provides a relative measure of geologic time. These fossils from the Hoback formation could be matched against that standard sequence in order to determine the relative geologic age of that part of the formation in which they were found. Furthermore, one approximate limit could then be specified for the time when the over-thrusting had occurred, since it must have taken place after the deposition of the Hoback formation which the thrusts had overridden.

Besides doing more quarrying at the original site, I then began a systematic search for other fossil vertebrate localities. This involved much walking, riding, and climbing to reach scattered rock outcroppings, and then a great deal of crawling on hands and knees as I scrutinized the ground for the smallest bone fragments that might serve as clues to lead me to the



STORY-BOOK DRAGON? No, this is a continuous miner, built to be highly maneuverable in a cramped, underground coal mine. With cutting bits mounted on electrically powered chains . . . it rips the coal from the seam face . . . and then conveys it automatically into transportation equipment for removal above ground. One of the wonders of modern invention, this powerful machine is made of tough, enduring steel. Only steel can do so many jobs so well.

UNITED STATES STEEL

burial places of other fossils. This effort was partially rewarded, but the pickings were slim. Every possible note was taken concerning the location, type and character of sediment, and environment of deposition at each productive locality. At the same time I remapped the geographic limits of the Hoback formation and rechecked the geologic observations of my predecessors.

One tedious but absolutely essential task then remained before I could consolidate my data into a common framework. Beginning near the bottom of the formation and working upward through the strata, I carefully measured every foot of rock, noting the character and thickness of each lithologic variation I could observe. This was possible because the originally horizontal strata had been tilted, and erosion had left their upturned edges exposed as a series of parallel bands. I chose the course of the measured section so as to take advantage of the best outcrops and at the same time pass as closely as possible to a maximum number of fossil localities. Eight horizontal miles from where I had begun, untold feet up and down mountains, and fifteen thousand feet stratigraphically higher in the formation, I finished that task. Then, by comparing the rocks described at the fossil localities with those I had recorded in the measured section, and wherever possible tracing the strata at those localities until they intersected the section, I was able to establish the vertical position of each locality within the formation.

Back in the laboratory after each summer, I carefully freed each delicate specimen, some with extremely complicated little teeth no larger than pinheads, from its tough limestone matrix. This was painstaking microscope work, but I became thoroughly familiar with every specimen in the process. Then the specimens were tentatively identified by a study of the literature and finally identified, if their types had been found before, by comparison with specimens stored in several eastern museums. All pertinent work of others was reviewed and at last the results of the study could be reported. What were the results?

First, the thickness of the Hoback formation was determined, and the formation described in detail. The environment and

mode of its deposition were determined in part. The time limits, between which deposition of the formation and one climactic phase of crustal disturbance took place in the area, were more accurately placed. Three new fossil vertebrate faunules, including over a dozen mammalian genera, were described from a region whose ancient inhabitants had not been known before. The environment in which they lived, a subtropical lowland forest, was inferred. Five mammalian species were recognized as being new to science and were described. Some new light was shed on the anatomy and evolutionary development of several genera. These are all parts newly fitted into a larger basic scientific puzzle. The findings will be published as a technical report in the bulletin of the Geological Society of America, entitled "Early Cenozoic Stratigraphy and Vertebrate Paleontology of the Hoback Basin, Wyoming." Due credit will also be given there to all those whose work space does not permit me to acknowledge here.

What about more immediate practical applications? The driller can now anticipate more accurately the drilling depth to possible oil-producing strata. He will know what to expect and when to expect it as his drill bites deeper into the rock. Since he knows the timing and sequence of geologic events, he can judge whether there was any oil left to accumulate when the "trap" structures were completed. This information is already in use, but neither the Museum nor I will receive any royalties if this labor in pure science helps bring in new oil wells.

Do I enjoy my "vacations?" Yes! And I intend to continue doing so. I still want to know exactly when deposition of sediment began and ceased in that basin, and where the sediment came from. I want to know more about the animals that lived there and when certain other important geologic events occurred. So if you should plan to visit me out there on vacation, leave your fishing tackle at home. Bring instead—pick, shovel, strong lungs, and stout legs!

Dr. Dorr, a graduate of the University of Michigan, joined the Museum staff last June as assistant curator of vertebrate fossils. Previously he served four years with the Army engineer corps and then was teaching fellow in historical geology, instructor in field geology, and research assistant in vertebrate paleontology at Michigan.

LOST IN THE BASEMENT

VAUGHAN GARWOOD



ARE YOU the iron-willed, single-minded type, capable of driving straight toward a chosen goal and avoiding all distractions that lurk seductively by the wayside? Can you, for example, look up "wassail" on page 2307 of Webster's unabridged dictionary without pausing en route to let your fancy dwell upon "wall pellitory, a European urticaceous plant" (page 2301) or "warragal, warrigal—see warragal the dingo" (page 2305)?

Don't read this if you are, because you wouldn't understand. This is only for people who meander through life rediscovering at every turn that one horizon leads irresistibly to another, and the grass on the far side of the fence is always greener.

My sole intention, the first time I ventured off limits from the cafeteria in the basement at Carnegie Institute, was to visit Gwendolyn the Galápagos iguana, who has been in residence there since early last fall. As you may remember, after traveling for three weeks to reach Pittsburgh this exotic brunette of the lizard tribe was presented to the Museum on August 28 by her captor, Josiah R. Eisman, whose salty yarn of Pacific adventure begins on page 42 of this issue. With rare exceptions, such as one famed specimen kept alive for seventeen months by the Royal Zoological Society of London, marine iguanas seldom survive more than a few weeks away from their native islands. None had ever been known to eat in captivity until Gwendolyn yielded to the blandishments, synthetic sunshine, and special diet offered her by Carnegie Museum herpetologists. With the first "State-side" champ of her jaws she broke one long-unchallenged record. Another stands in growing danger of being shattered as week follows week with no sign from Gwendolyn of any willingness to defer to a British precedent.

Singular by all mainland standards, note-

worthy as a member of a geographically isolated species, and already eminent in research circles—how could such a celebrity be even temporarily forgotten in favor of lesser claims to attention?

This is a hard question to answer except in terms of two impressions common to all explorers below stairs at the Institute. One is the apparently inexhaustible variety of objects, installations, and activities to be found within that four-and-a-half-acre labyrinth. The other is what might be called the iceberg phenomenon: a visible vastness above ground supported by an even vaster substructure extending deep below the surface. By no means the most spectacular features of these lower depths are located between the cafeteria and Gwendolyn's sanctum, yet during the minute or two it takes to walk from one to the other you can be sidetracked half a dozen times if you are susceptible to sidetracking at all.

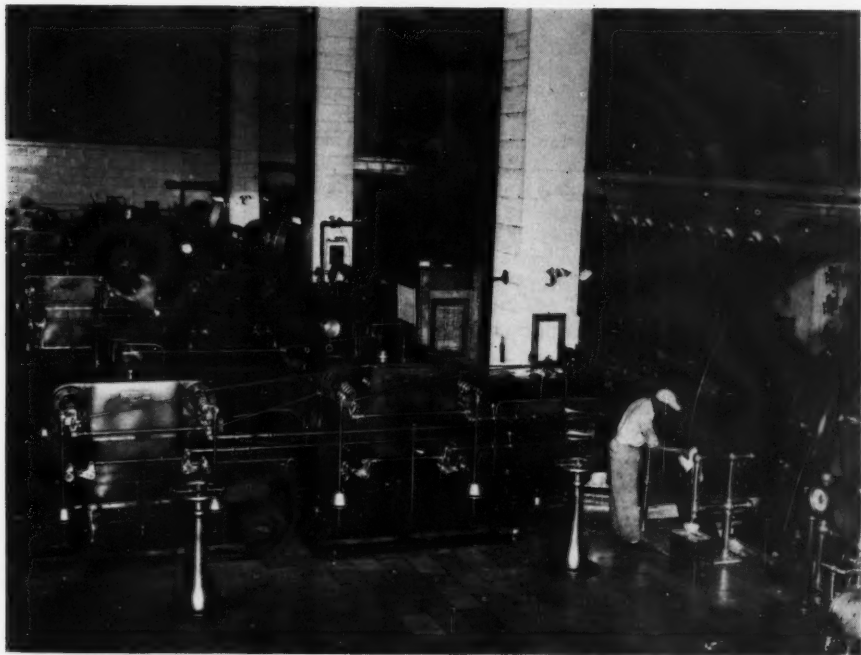
The Bone Room, of course, is the distraction par excellence in this wing of the basement. Museum preparators working within view of the windows have long since become inured to the presence of sidewalk superintendents with noses flattened against panes and eyes riveted on the bench where a plaster cast of a skeleton is taking shape or some delicate fossil being patiently freed from its matrix. Beyond window range lies one of the world's great hoards of fossil treasure, garnered during half a century of expeditions and now come to rest in tier upon close-set tier of

Miss Garwood has been staff writer at the Museum since last spring, coming from Harrisburg where she did feature writing for the State Council of Civil Defense in its organizational period. A graduate of the University of Colorado in her native state, she spent three years in New York doing public-opinion surveys and later served with the Office of War Information in London. With the OWI she wrote for illustrated magazines sold in European countries. Articles or verse by Miss Garwood have appeared in *Woman's Day*, *Family Circle*, *Junior Bazaar*, the *American Mercury*, and the *New York Post*. She is currently experimenting with a new type of revolving label at the Museum, along with other duties.

Interesting Finds Belowstairs



A THOUSAND YEARS ARE AS YESTERDAY IN THE BONE ROOM. INCOMPLETE DAPHNODON AT CENTER



FIVE GENERATORS PRODUCE TWO MILLION KILOWATTS ANNUALLY FOR INSTITUTE AND LIBRARY

overflowing shelves, drawers, and cases.

This is truly paleontology by the ton. It is also an illustration of one problem common to museums, art galleries, and libraries everywhere. Design exhibition halls or browsing rooms as you will, they never prove adequate to hold at best more than successive small samples of the material that accumulates as the staff carries out its obligation to collect, preserve, and make available to the public notable works of creation, divine or human. Storage is either a primary or a secondary function of almost every room in the Carnegie basement, whose inner fastnesses conceal several gigantic chambers devoted to nothing else. Even so, a custodian's path is continually beset with the thorny problem of space shortage.

Not far from the Bone Room are two vital nerve centers of Carnegie Institute—the guards' headquarters and the receiving office. From the former are dispatched to all public areas trained crews who keep watch over the building and its contents, serve as peripatetic manuals of information, restore to rightful custody lost gloves, umbrellas, and children, and assist staff members as well as visitors in countless other ways often taken for granted, yet indispensable to the smooth working of a large and many-sided civic institution.

On constant vigil in the receiving office is a Cerberus who supervises all traffic entering or leaving the premises. Under his scrutiny pass expedition trucks embarking on safari, incoming cases of precious cargo suitable for framing, reading, or dissecting, and a stream of mundane supplies such as fuel for the subterranean machinery that keeps the Institute going and the raw material of the meals served to a daily average of some five hundred cafeteria patrons.

The guards, who know whereof they speak, advise against tracing that fuel to its destination unless a pioneer heritage has endowed you with strong legs, persistence, and at least average tolerance for heat. To reach the engine room with its five giant generators, still going strong after forty-five years' service but now supplemented by feeder lines of the Duquesne Light Company, you need only descend a short distance into a white-tiled sub-basement, where genial engineers will initiate you into the mysteries of watt and ampere.

Similar hospitality rewards the more considerable effort involved in visiting the boiler house. For my part it's worth it. The long, chokingly hot tunnel leading to the final flights of steps may remind you of Dante at his direst; the steps themselves seem to plunge endlessly downward into blackness; but few concentrations of harnessed energy within a layman's daily ken can equal what you find at the nethermost level.

Not only Carnegie Institute but also Mellon Institute, the University of Pittsburgh, four nearby hospitals, and the Young Men's and Women's Hebrew Association depend on these coal-devouring iron monsters to meet their fluctuating demands for heat. Peer inside through the glareproof shield provided by your host, and you can imagine the Earth itself in the making. Then study one of the indicator panels where mechanical hands and fingers record consumption, output, and temperature. A needle wavers across a dial. "Mellon Institute's 'taking a drag,'" the engineer explains. Controls are reset, automatic stokers take on a few more r.p.m., and the flames leap higher to compensate for the increased demand. All such speed-ups are kept within legal limits by "Peeping Tom," the electronic bolometer smoke-control indicator.

A basement tour of no mean dimensions could be made by visiting only installations that serve all four Institute departments—Library, Music Hall, Fine Arts, and Museum. You might begin with the maintenance staff's headquarters; inspect the laundry and the refrigeration system that circulates iced water to drinking fountains throughout the building; take a look inside the carpentry shops where furniture is repaired and exhibition background material fabricated; study the operation of the huge air fans, a technological novelty in 1907 and an efficient ventilation system even today; and eventually find your way to the Institute press, which also does printing for Carnegie Institute of Technology.

Such a plan is easier to make than to follow, however, because of special departmental areas along the way. Particularly recommended for bookworms are the Library schools division and the bindery; for animal-fanciers, the education di-

vision's laboratory of taxidermy and its miniature zoo containing live hamsters, snakes, and other small creatures, including an athletic raccoon from the Children's Zoo at Highland Park; for musicians, the rehearsal hall and the underground blower apparatus of the Music Hall organ; for devotees of the graphic arts, the sculpture studio and the basement classrooms where amateur fingers acquire mastery over brush and pencil.

Fortunately for the venturesome, getting lost in the basement is a matter of temperament and not necessity. Indeed, experience indicates that lucky finds are more frequent than mysterious losses. What may easily be the all-time record for serendipity—"the gift of finding valuable or agreeable things not sought for," according to Webster (page 1924)—was achieved by Carnegie Museum ornithologists back in 1932 when a minor flurry in a dark basement corner led to the discovery of two live baby owls belonging to the secretive

saw-whet species almost never found nesting in western Pennsylvania. Even during a depression when expedition funds are at their lowest, it's a rare mother bird that will go to such lengths on behalf of pure science.

There comes a time in your basement exploration when you realize that it can't all be done at once. I had started out to visit Gwendolyn the iguana. By sternly resisting many irrelevant temptations I finally made it, and I hope our introduction will lead to a long acquaintance. The herpetologists with whom she shares her quarters not only offer every courtesy to the visiting layman but extend their welcome indefinitely, thus providing a renewable pretext for underground adventure. If the invitation still stands, I plan to go down there again as soon as I've found out about something else that has just occurred to me.

I wonder what there is to see up under the roof!

A COMMONWEALTH OF BEAUTY

THE prize statement on "What the French Art Show Meant to Me," by Beatrice Lewis, a Pittsburgh free-lance writer and graduate of Pennsylvania College for Women, in the contest sponsored by the *Pittsburgh Press*, reads as follows:

"It meant that throughout the historic kingdoms, empires, and republics of France, there was another country of the human spirit. It was a commonwealth of peace and beauty; its only export, the legacy of genius. This show was an enthralling visit to that place, a chance to linger there."

The contest was held during the exhibit of FRENCH PAINTING: 1100-1900 at Carnegie Institute. An award of \$250 was given, and 379 contestants also received full color reproductions of Renoir's *Girl with a Watering Can*. This prize was offered to all who submitted complete identification of the 29 details from paintings in the exhibit, which were reproduced in the *Press* Sunday rotogravure section.

The committee to select the prize-winning essay of fifty words included Gordon Bailey Washburn, John O'Connor, Jr., and Edward Duff Balken.

Mr. Washburn's comments on all the statements submitted is this:

"The value of this contest to those who entered it is amply revealed by the writers, many of whom speak with delight of the amusement and instruction which the contest provided.

"As for the exhibition itself, the essays reveal—with great variety of expression and with much thoughtfulness and feeling—its enormous impact on this community. Many contestants indicate that they have never seen an old master before, or even been in a museum. Others contrast the modern with the old, sometimes disadvantageously. A large majority mention the illuminated books and the drawings as of equal interest to the easel paintings, revealing that such material is far from being 'caviar to the general.'

"There is a solid core of understanding, throughout these comments, as to the humane values to be found in art, bringing peoples of the world closer together. I have personally been given renewed faith in the efforts of our art museums to enrich and nourish citizens in all walks of life through reading these wonderful little statements. They prove the need for greater exertion, greater support in providing our citizens with the best in art."



Heins Collection . . . Carnegie Institute

From far Places

OF ALL THE MEDIA used for carving, none has so fleshly, so tender-seeming a quality as ivory. Apparently sculptors have always sensed this. For one of the most ancient artists—a primitive craftsman working a tusk in his cave—recognized in the milky smoothness, the faintly oily feel, the near-body warmth of the substance in his hands, a likeness to the form of his beloved whom he immortalized in the world's oldest Venus.

- The annals of sculpture from every time and culture since have been filled with intimate artifacts of women and children.

- This tradition flowered in the studios and workshops of Flanders and France under the exuberant influence of Rubens. It continued a century or more until its sheer excellence began to pall. Then English tourists rediscovered this charming minor art, and it enjoyed a great revival.

- The cherub here—plump-cheeked, dimpled, feathered, and curled—is the epitome of man's warmth and tenderness toward his loved ones . . . transmuted to eternal ivory.

- Perhaps never have home and family been more meaningful than now. Today the dinner table has become a symbol of this kinship and renewal as well as nourishment. It has been our privilege to have contributed 57 Varieties of good things to the American family table for over eighty years.

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